The Journal of Humanities, Meiji Univ., Vol. 17 (March 31, 2011), 25-34

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Introduction

This paper will examine applied usages of popular culture works in the classroom for the execution of innovative programmes such as those currently being promoted by the Meiji University School of Commerce, namely the Special Themed Activity Classes (Tokubetsu-teema jissen kamoku). For this purpose I will use and describe my own lesson plan and ultimately illustrate the importance of not only the usefulness of these works as tools for education, but also the issues which they bring to the mind of the young individual living in our current postmodern age. Coming from a background in the study of how media affects society, I personally feel that we as an education institute ought to take advantage of our current wealth of visual/aural affluence and attempt to guide the young generation using these tools.

The role of popular culture as knowledge proliferator

It was not Tsiolkovsky[1] in 1895, nor Artsutanov[2] in 1959, but rather the award-winning *The Fountains of Paradise*, the science fiction novel written by Sir Arthur C. Clarke in 1979, which finally managed to popularize the idea of the "Space Elevator" throughout the consciousness of the general public. Likewise, in Japan, it was the 1979 animated series *Mobile Suit Gundam,* directed by Yoshiyuki Tomino, that spread the concept of Space Colonies across the young, predominantly male viewership.

Through its prevalence in capitalist society, popular culture and science fiction have, throughout modern history, given us dreams as well as been a tool for propaganda. In the run-up to the Apollo lunar landings during the 1960s, children and young people in the US were already im-

1 Konstantin Tsiolkovsky (1857-1935) was said to have thought of a structure reaching into space upon witnessing the construction of the Eiffel Tower.

2 Yuri Artsutanov (1929-) is credited with the innovative idea of placing a counterweight to Tsiolkovsky aforementioned orbital tower and using the Earth's rotation to propel it across a geostationary orbit, meaning that one could ride a vehicle along the tower and thus bringing the "Space Elevator" concept one step closer to practicality.

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mersed in outer space hype. This public fascination with space seems to have faded from its glory days, gradually so since the end of the 1970s. When once Space Shuttles and Concords roamed the skies, the present 2010 is now a manifestation of economical utopia for the consumer. Gone are the visions of societies in the future being intertwined by travel in Syd Mead-inspired vehicles, rather, the world is nowadays connected on a virtual plane. The intangibility of the "Information Age" is something that few visionaries of the future had envisaged in fiction, perhaps with the exception of Forster's *The Machine Stops*. Whilst not denying the practical conveniences in our lifestyle brought about by software such as Twitter, Facebook and Skype, it is quite clear that our introvert attitudes have gone as far as to question our necessity to ever leave our houses to meet people, let alone take a look outside and gaze at the stars contemplating the possibility that the human race may one day be living amongst them. As mind-bogglingly amazing as some of our new gadgets such as the iPhone may appear to be (at the very least if we were to show them to time travelers from as recent as the 1980s), in our struggle to keep up to date with the latest newsfeeds and search trends we may actually have closed ourselves off from the realm of imagination in which we once prided ourselves on. True enough, looking at the latest offerings from the entertainment sector of the media (yet not limited to it), and contrasting it with the once-rich smorgasbords of varied genres including cutting-edge science-fiction with socially-relevant satire, one can see a sharp decline in complexity and a strong reliance on satisfaction through visual impact, due to ever-advancing computer graphics technology. I believe that education can fill this gap, and in this paper I will introduce my plan to tackle the issues which need addressing immediately, so as not to bring up a generation ignorant of the direction in which their ancestors once dreamt of taking their descendants.

Formulating the sociology of plausible futures: Taking cues from the classics

The concept of the role of humanities and social sciences in a hypothetical future world where technology has evolved to the extent that mankind has the option of living out in space or on other planets of course has been mostly explored by these aforementioned entrepreneurs of literature. The pulp magazines of the early to mid-20th century captivated the imaginations of these writers and many of them, including Asimov and Clarke, even made contributions to these "lowly" publications, before becoming the award-winning novelists they are now remembered as. While eventually the pulp works made the transgression into comic book action/fantasy, the fiction rooted in real science and applied physics came of age to become a medium with a far greater reach and impact on our social consciousness, transcending a multitude of social strata and professions – including that of actual physicists (or even inciting the young to become involved in aerospace research and its possibilities as adults).

The concepts most accredited to Arthur C. Clarke are the geostationary-orbit satellite, and the space elevator. Neither of these was an idea purely constructed from the mind of Clarke. Rather, these concepts could be said to have been "rescued" by Clarke, from wallowing in the obscurity of the writings of astrophysicists in scientific academic journals and such sources of limited read-

ership. Additionally, in being put into a narrative context, these ideas played crucial roles within Clarke's stories, giving us, the readers, a sense of conviction and acceptance that the world envisaged within those pages could in fact be a later incarnation of our own, through the behaviour of characters, properties and ideals depicted. One challenge every fiction writer must face, especially in the case of fantasy, is how to instill into the reader the suspension of disbelief. In the case of Clarke, the suspension of disbelief is transformed into a mere handful of conditions: "If A happens, then B may happen. This is the story of B." That is to say, A is the condition, B being the consequential events which navigate the path of the narrative. Thus, if we equate the tale of the *Fountains of Paradise* as B, then the pretext to this is that the story takes place in a world where the condition "Space Elevators, structures stretching from the surface of the Earth that reach out into outer space, can be constructed". Their wonder and captivation aside, the reason Clarke's stories remain classics is because the condition A itself is brought into the public eye and henceforth interdisciplinary efforts conjoin to make it a reality. One major area where this differs from unilateral scientific research and development writings is that Clarke has incorporated the aspect of "humanity" within his stories, and how humans interact with this technology. That is not to say that aerospace engineers do not consider the effects of their equipment on humans, to assert so would be ridiculous. However, in creating detailed worlds in not-so-distant futures where humans recognizably behave like humans and exploring concepts like religious practices within the context of space elevators – what essentially is a modern Tower of Babel – Clarke is giving us the opportunity to look at ourselves and consider what kind of lives we want to lead, what futures we want to bring about, what actions that we take today will lead to certain events which we may want to avoid. In short, he is lecturing as both the scientist and the sociologist/anthropologist.

The importance of this "context" is something that should never escape the social consciousness of the general public, no matter their age, sex nor race. Since the future is inescapable, we may as well have as many sources of enlightenment to guide our hands as possible as we attempt to shape it into something which we want to bequeath to our children and grandchildren. Therein lies the responsibility of education.

Topics of discussion within the course

There are many space-related issues to be looked at which may change our lifestyle considerably in the near future. Of immediate concern are the following questions: What are the social ramifications of the space tourism programme, currently underway – with and without government subsidies – by various companies around the globe (including, the most prominent, Virgin Galactic)? Putting aside the revolution in space freight and transport that the Space Elevator can bring to the table, exactly who will govern it and how? How can we keep it from being the subject of an international dispute over investments, territory, or even safety?

These are questions we as thinkers in the fields of humanities and social sciences should pre-

occupy ourselves with sooner rather than later, as the hypothetical nears imminent reality at speed unprecedented. It is with this and more in mind that I have begun administering the special course in Astrosociology at the School of Commerce in Meiji University, entitled "Our Entry into A New Space Age".

The course itself is targeted towards those with minimal knowledge of space exploration and development, and focuses on the plausible effects these things may have on our society. It is taught with a heavy emphasis on student participation, discussion and debate, as well as group projects. The main themes are, for the most part, hypothetical conditions which, were they to be met, would lead to various changes in our lifestyle. Thus, allocating a few weeks per theme, the main issues to be looked at are:

Space Tourism: Already in the late stage of development, this imminent industry is expected to thrive as a form of affordable and easy space travel for the masses. This theme ought to be looked at from various angles, including that of the detractors of the programme, who believe it will only worsen pollution in various ways and create a much greater divide between the classes of rich and poor. Cases of activist protests against the progress of these programmes have already been seen, and they are expected to increase in number.

The Space/Orbital Elevator: A concept seemingly far-fetched yet surprisingly well within the realms of plausibility – at the very least as much as the lunar landings were considered to be at the start of the 1960s. Put extremely simply, a structure could be built on Earth which, by utilizing the centrifugal force from the Earth's rotation, could theoretically extend outside of the atmosphere with a counterweight at or above geostationary orbit. Essentially, this enterprise could play a key role in the development of space tourism and space freight (that is, transportation of materials from the Earth into space and vice-versa for construction in both regions), and could – the initial cost of the construction aside – ultimately be more economical and undoubtedly more ecologically friendly than launching rockets every time we need to access space. Realistically, provided the materials for the construction such as the carbon nanotube[3] are developed to the required degree, we may see the construction of the space elevator within this century. The issues we concern ourselves here are the ramifications of its construction. Since it will most likely have to be built on an equatorial region, certain political measures have to be implemented and the likelihood of misunderstandings arising is a near certainty, given even recent history regarding the usage of foreign land by international corporations. Conflicts over ownership and/or control over space elevators have been depicted in many works of fiction, in particular Japanese anima-

3 The most practically realistic interpretation of the space elevator concept is not of a tower structure as envisaged in some works of fiction, but rather a taut "tether" of sorts, around which a vehicle would rise up through the sky and into outer space. Given the immense strains and pressures as well as the differences in heat the tether must bear, experiments are currently underway to procure a malleable material strong enough to avoid the possibility of any catastrophe. The carbon nanotube, under development, is said to potentially have the best properties for this job.

tion[4], and these materials can help to illustrate social and political reactions to manifestations of scientific progress effectively within a classroom environment.

Living in Space: Moving on logically from the above, we would then explore the construction of space habitats, and other forms of space infrastructure. The International Space Station serves as an experimental test bed for the way humans and plants behave in space and are affected by its environment. However, we will look further than this stepping stone to life in outer space and consider the nature of human sustainability within structures such as those proposed by the late Dr. Gerard O'Neill, a physicist and designer of various Space Cylinder/Space Habitat concepts which inspired the settings for many works of science-fiction including the beloved Japanese series *Mobile Suit Gundam*. His award-winning book, *The High Frontier: Human Colonies in Outer Space*[5] will also prove to be an invaluable resource of information for the course attendants.

These topics will each be looked at separately and broken down into viewpoints of "Economy", "Politics", "Safety" and "Technology", with a sub-category of "Ecology". For example, how does the newly-elected Democratic Party of Japan's government budget screening play into the development and promotion of JAXA's (Japan Aerospace Exploration Association) activities[6]? When we consider the effect of the Challenger Space Shuttle disaster of 1986 in which civilian Christa McAuliffe, a schoolteacher[7] – arguably the first space tourist – was among the fatalities (this accident immediately terminated any discourse of civilians in space until very recently), what mea-

4 Here I refer mostly to the works of more serious science fiction in animation seen from the late 1970s to the 1980s, since the creators, in particular those such as the members of Studio Nue, were predominantly of the sci-fi boom generation and borrowed concepts from classic auteurs like Clarke, Asimov and Heinlein. Creators of Japanese animation from other generations had different influences (in later generations, these were mostly from other animation directors and designers) and thus were concerned with utilizing the medium to explore other themes and relate other messages to their viewers.

5 Gerard O'Neill is sometimes described as a "space activist". His book is seen as an overly optimistic view of the future, in which humans today (from the point of view of the time the book was written, yet still applicable today) are described to have the technology to embark boldly on a venture towards a life in outer space, yet lack the commitment to do so. He thus describes not only the mechanics and the details which could make his conceptual "Islands" a reality, but also includes fictionalized accounts of people having begun to live on these artificial space habitats, in the form of letters to their loved ones back on Earth. It is probably these touches that made the book a favourite amongst readers of many backgrounds, and one more reason why it is required reading for students of this class.

6 Japanese aerospace engineering and technology is quite likely the top in the world, with a recent streak in successful launches that even NASA has not met. Yet, budget constraints hinder the potential of its missions. It is here that we ought to urge the public, through education to stimulate awareness, to provide some more vocal support, in particular now that the miraculous success of the Hayabusa mission seems to have captivated the hearts of the population.

7 A competition was held as part of NASA's "Teacher in Space" project, which would have seen the winning entrant going into space and then teaching children from aboard the Shuttle. McAuliffe was selected from 11,000 applicants.

sures must be taken in order to develop space tourism as a viable commercial industry? And we should even tackle the issue of what, should mankind ever actually succeed in living in orbital space habitats or even on other worlds, their governmental systems would be like. The Space Treaty, opened in 1967, would be the main starting point for this discussion, perhaps leading on to more anthropological and maybe philosophical explorations such as what would happen to cultural identity and national pride.

Conclusion

At the time of this writing, the course has already begun and is on its second week. Already a wide variety of materials such as newspaper articles, magazine features, online sources and academic research publications have been used as handouts for the students, as well as many forms of visual media such as Youtube clips of the Challenger footage (the shocking live feed from CNN has been uploaded for posterity online) and the test flights and simulations of Virgin Galactic's space tourism programme, which have proved to be invaluable tools to illustrate the reality of these issues in question, unfortunately still not in the realm of general knowledge. The enthusiasm and interest level of the participants runs strong and they are currently undertaking their first main task, which is to conduct a survey to measure public sentiments concerning space exploration and development, in the wake of the aforementioned budget cuts. Forthcoming lessons will involve screenings of clips from various Japanese animation series (such as 1983's *Super Dimension Century Orguss*) featuring many aspects borrowed from the sci-fi literary classics including the ubiquitous Space Elevator, since those are the most prominent sources of "imagined futures" as seen in visual media, with the creators having considered both the scientific and the humanistic side of their created world.

It is my hope that it is not too late for the usage of these master works of our past imagination to play a role in the innovations of future generations before the harsh reality of global warming, dwindling resources and economic crises develop to the extent that society is out of options for its own sustainability.

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